

REMARKS

Claims 1-5, 7 and 9 have been rejected by the Examiner under 35 U.S.C. 103 (a) as being unpatentable over Sakamoto et al., U.S. Patent 6,201,049 in view of Japan '851 (JP 58-3851), the admitted prior art (page 9, lines 23 – page 10, line 2) and Japan '957 (JP 2002-128957). This rejection is respectfully traversed.

The present invention is directed to a pneumatic tire which is provided with a thin film rubber layer formed on the buttress of the tire, said thin film rubber layer containing a compound obtained by adsorbing N-(1-methyl heptyl)-N'-phenyl-p-phenylenediamine ("8 PPD") to silica, wherein the rubber is a diene rubber comprising 50-80% by weight of butadiene rubber and 20-40% by weight of natural rubber and/or isoprene rubber.

As noted on page 4 of the present application, the type of rubber which is used in the thin film layer of the present invention is particularly important when trying to achieve excellent ozone cracking resistance and the present specification specifically differentiates between butadiene rubber and natural rubber in this regard. The second full paragraph on page 4 of the present application further states that when the diene rubber contains butadiene rubber, 50-80% by weight of the butadiene rubber is preferably included within the diene rubber and thus when the content ratio of butadiene rubber is less than 50% by weight, ozone cracking resistance and cracked growth resistance tend to decrease. On the other hand, when the content ratio of butadiene rubber is more than 80% by weight the breaking strength of rubber decreases and external scarring resistance tends to decrease.

To point out the importance of the particular type of rubber which is utilized in the thin film layer of the present invention, the applicant is submitting herewith a further declaration under 37 CFR § 1.132 which shows in experimental Example 2 that when a rubber composition as described in JP 2002-128957, (newly cited by the Examiner), is utilized, inferior ozone crack resistance is obtained. Thus, experimental Example 2 provided in the declaration, which contains 100 parts by weight of natural rubber and 10 parts by weight of antioxidant D, which corresponds to Example 5 of Japan 957, shows an ozone cracking resistance value as low as "3" (please see Table 2 of the declaration).

In the same way, the ozone cracking resistance value of experimental Example 1 of the declaration under 37 CFR § 1.132, filed May 12, 2006, corresponding to the Sakamoto reference, U.S. Patent 6,201,049 is as low as “3.5”. Therefore, even if the Sakamoto reference, (Japan ‘851) and (Japan ‘957) are combined as suggested by the Examiner, one skilled in the art cannot possibly contemplate the ozone cracking resistance value achieved by the present invention. Thus, the most that can be expected by combining the references as suggested by the Examiner is an ozone cracking resistance value of “3.5”. In contradistinction thereto, the ozone cracking resistances of Examples 1, 2, 4 and 5 of the present application (Table 1) show higher values of “4”, “4.5”, “4.5” and “4”, since the rubber compositions of Examples 1, 2, 4 and 5 of the present application contain specific amounts of butadiene rubber and natural rubber and/or isoprene rubber.

In addition to the above distinctions, the Sakamoto reference discloses a rubber composition used in tire sidewalls which may employ 8 PPD as noted at column 4, line 23. The Sakamoto reference further discloses that there are components, including antioxidants, which may be “blended” with the rubber composition. (See Column 3, lines 43-49). The referenced patent fails to disclose or even remotely suggest the use of 8 PPD-absorbed silica as utilized in the present invention and thus a significant patentable distinction can be seen between the present invention and the Sakamoto reference.

The “admitted prior art” as disclosed at pages 9–10 of the present specification, includes the commercial product “antioxidant 35-PR” which is 8 PPD-absorbed silica. There is no suggestion in the admitted prior art of employing 8 PPD absorbed silica in a thin film layer formed on the buttress of a tire as required by the present invention.

Japan ‘851 also fails to disclose or suggest the employment of 8 PPD-absorbed silica in a thin film layer formed on the buttress of a tire, as in the present invention.

Japan ‘957, as discussed hereinabove, does not recognize the importance of the specific rubber composition of the thin film layer formed on the buttress of a tire as defined by the present invention. Thus, all of the references relied upon by the Examiner, although generally suggesting that antioxidants can be considered for use in rubber compositions, fail to recognize the advantageous and unexpected improved properties with regard to ozone cracking resistance

achieved by the present invention which employs 8 PPD-absorbed silica in a specific rubber composition for unexpectedly achieving enhanced ozone cracking resistance. This represents a significant patentable distinction between the present invention and all of the references relied upon by the Examiner, either alone or in combination.


Accordingly, in view of the above amendments and remarks, reconsideration of the rejection and allowance of all the claims of the present application are respectfully requested.

If any questions arise in the above matters, please contact Applicant's representative, Andrew D. Meikle (Reg. No. 32,868), in the Washington Metropolitan Area at the phone number listed below.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment or credit any overpayment to Deposit Account No. 02-2448 for any additional fees required under 37 C.F.R. §§ 1.16 or 1.17; particularly, extension of time fees.

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Respectfully submitted,

By 
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Enclosure: Otsuki Declaration under 37 CFR 1.132